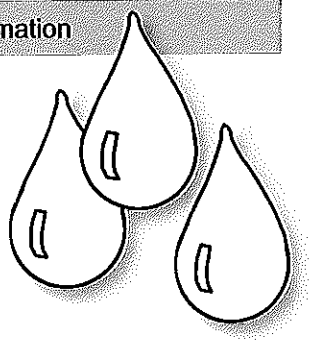
LESSON 2

More About Nutrients and Using Food Labels

Student Learning Objectives:	National Health Standards:
1. Explain the importance of choosing water rather than other beverages for the purpose of keeping the body hydrated.	• Core Concepts
2. Identify information provided on food labels.	• Accessing Information
3. Interpret information on food labels.	• Accessing Information

Lesson Synopsis



Review the six nutrients. Explain the relationship of water to nutrition and encourage drinking water instead of other beverages for body hydration. Demonstrate how to find and use information on food labels. Practice interpreting information on food labels to evaluate the nutrient content of foods. Review the importance of drinking water and how food labels can help when choosing foods high in nutrients.

Activity	Time in Minutes	Materials Needed
Introduction	3	Supplied by the Teacher • Pens and pencils • Writing paper
Teacher Input	25	Health Education Materials • Poster: "Using Food Labels to Guide Decisions," Michigan Model for Health Clearinghouse • Food Label Signs: "Note the Amount," "Percent of Daily Value," "Number of Servings," "Check calories for each serving," "Limit the items listed in orange," "Get enough of the nutrients in yellow," "5% or less is LOW," and "20% or more is HIGH," Michigan Model for Health Clearinghouse • Poster Set: "MyPlate: Healthy Food Choices," Michigan Model for Health Clearinghouse • Activity Cards: "Food Labels," Michigan Model for Health Clearinghouse, eight sets (Suggestion) Teacher Manual Resources • Student Worksheet: "Water: The Essential Nutrient" • Teacher Reference: "The Facts About Water" • Student Worksheet: "What Am I Drinking?" (Extension Activity) • Student Worksheet: "Interpreting Food Labels" • Student Worksheet: "Snacking for Health" (from Lesson 1) • Teacher Reference: "Visualizing Amounts" Supplied by the Teacher • Food labels and packages including many snack foods • Pens or pencils • Eight-ounce glass or bottle • Computer with Internet access (Suggestion and Extension Activity) • Projector (Extension Activity) • Baseball, not a softball (Suggestion) • Two 9-volt batteries (Suggestion) • CD in plastic case (Suggestion)

Teacher Input (continued)		• Small computer mouse (Suggestion) • Deck of cards (Suggestion) • Tablespoon (Suggestion) • Ping pong ball (Suggestion) • Teaspoon (Extension Activity) • Clear glass (Extension Activity) • Sugar, 10 teaspoons (Extension Activity) • Regular soda can (Extension Activity)
Application or Skill Practice	15	Teacher Manual Resources • Teacher Reference—Assessment: "Assessment Rubric for Skill Development: Reading Food Labels" Supplied by the Teacher • Pencils or pens
Closure	2	• None
TOTAL	**45**	

Preparation

Prior to the Lesson:

- **Decide if you want to assess** student skill development. A rubric, "Assessment Rubric for Skill Development: Reading Food Labels," is provided for you to use at the end of this lesson. Lessons 2 and 3 address reading food labels. The rubric can be used with either lesson.
- **Decide** if you want to download one or both of the PowerPoint presentations titled, "Portion Distortion," from the Department of Health and Human Services, National Institutes for Health website: http://hp2010.nhlbihin.net/portion. They are free to download and use with students. They present examples of how portions of foods have increased in 20 years. (Extension Activity)

For Teacher Input:

- **Use the food labels** students brought to class or those you supply.
- **Review** the teacher references, "The Facts About Water" and "Visualizing Amounts."
- **Duplicate** the student worksheets, "Water: The Essential Nutrient" and "Interpreting Food Labels," so that students have a copy of each.
- **Have students use their student worksheet, "Snacking for Health," from Lesson 1 in this unit**. Have them ready to redistribute or have students locate the worksheet.
- **Continue to display the poster**, "Fill Your Plate" with the "Food Groups Signs" and "Using Food Labels to Guide Decisions" with the two food label signs you posted. Have the food label signs, "Check calories for each serving," "Limit the items listed in orange," "Get enough of the nutrients in yellow," "5% or less is LOW," and "20% or more is HIGH," ready to display around the poster.
- **Duplicate** the student worksheet, "What Am I Drinking?" for students if you plan to use it. (Extension Activity)

LESSON PROCEDURE

Introduction: Review the six nutrients and introduce the topic of the lesson.

Approximately 3 minutes

Instructional Steps	Script & Detailed Directions	Extensions & Suggestions
Review the six nutrients and identify the nutrient not discussed in the previous lesson.	Have students take out a small piece of paper. ***List the six nutrients we named in our previous lesson and place a star by the nutrient we did not discuss.*** Call on students to share one of their responses until all six nutrients have been named and water has been identified as the nutrient not discussed. Have students record their answers to the following three questions. ***If you are healthy, how does your body tell you it needs water?*** ***How many days do you think a person could live without water?*** ***How many days do you think a person could live without food?***	
Introduce the topics for this lesson.	*Today we will learn about the importance of drinking water. We'll also learn how to find and interpret more information about what is in food.*	

Teacher Input: Explain the importance of drinking water and identify the information found on food labels.

Approximately 25 minutes

Instructional Steps	Script & Detailed Directions	Extensions & Suggestions
Distribute the student worksheet, "Water: The Essential Nutrient."  Explain that water is essential to healthy body functioning.	Give students a few minutes to read the information at the top of the student worksheet. ***Based on the information you read, signal with a "thumbs up" if you think there is a part of the body or a body system that doesn't need water to function and be prepared to share your ideas.*** Answer: All parts of the body and body systems require water. ***Signal by making a "W" with three fingers if you were surprised to learn about the water content of food.***	 If you want to add physical movement to the lesson, have students signal by running in place, hopping, or stretching.

Analyze how much liquid students drank yesterday and how much of it was water.

Explain why water is recommended over sodas and juice.

You can get some of the water you need every day from the food you eat. However, your body needs a lot of water and everyone needs to drink water each day.

Hold up an eight-ounce bottle or glass.

This glass holds eight ounces of liquid. Eight ounces equals one cup. Think back to yesterday and try to remember what liquids you drank and how much. Record your answers at the bottom of the worksheet.

When students are finished recording, lead a discussion using the following questions.

Raise your hand if you had eight or nine eight-ounce glasses of liquids yesterday. Keep your hand raised if over half of the liquid was water. Keep your hand in the air if all of it was water.

It is recommended that you drink several glasses of water each day. Sodas and juices don't count.

Why do you think it is better for you to drink plain water than soft drinks or even juices?

Answers: Soft drinks contain lots of added sugar. Juice also contains a significant amount of fruit sugar. Both sodas and juices add calories to your diet, promote tooth decay, and can make it difficult to manage your weight.

You might think that diet sodas are okay because they do not contain added sugars. You are right! They don't contain sugar. However, they usually contain sodium and artificial sweeteners, or sugar substitutes, that may make them a less healthy choice than plain water. Diet sodas may replace more nutritious foods and beverages and decrease our intake of foods containing the nutrients we need. Some contain caffeine which can interfere with a person's rest and sleep.

You might be thinking that fruit juices are a healthy choice of beverage. You are right again! Fruit juices that are 100% juice provide a source of fruit which is one of the food groups. However, eating whole fruit is always better. Whole fruit contains fiber and many other nutrients.

You might also be thinking about milk. It is an important beverage to drink. Who remembers why?

Answers: Milk is an excellent source of calcium and vitamin D for bone health. Most people need to drink three cups of milk each day.

Have student keep track of the liquids they drink for two or three days. Have them note the specific beverage and amount. Then, analyze the amount of water consumed to determine if they are drinking enough water. Use the student worksheet, "What Am I Drinking?"

Have several different containers of beverages to give students examples of eight-ounces of liquid. For example, you might have a 12-ounce soda can, a juice box, and a small carton of milk.

Have several containers available that hold different amounts of water, such as a pitcher and water bottles of various sizes, to demonstrate the amount of water in an eight-ounce glass.

Encourage students to bring water bottles to school. Allow students to keep water at their desks all day.

When you drink milk, choose low-fat milk. It may be labeled as 2% or 1% fat, non-fat, or fat-free milk. Fat-free milk may be labeled as skim milk. Fat-free or low-fat milk are the healthiest choices.

However, the body also needs just plain water and lots of it for all the reasons given on your worksheet.

If students are unfamiliar with artificial sweeteners, explain that artificial sweeteners, or sugar substitutes, are used to create a sweetness in foods and beverages without the calories of sugar. Many studies have been done to determine whether or not there are negative health consequences to using them. The U.S. Food and Drug Administration approves the sale and use of certain sugar substitutes based on current research.

Set a clear glass next to a can of regular soda. With the students watching, measure ten teaspoons of sugar into the glass. State that many sodas contain ten teaspoons of sugar. Check the food label. Compare the sugar content of other popular beverages and juice. Suggest that students water down beverages high in sugar if they choose to drink them.

Distribute the student worksheet, "Interpreting Food Labels."

Use the poster, "Using Food Labels to Guide Decisions," and food label signs to explain how to read food labels.

Now that we understand the six nutrients, we are going to continue to discover what is in the food we eat.

Take out the food labels you brought to class.

Look at the food label of the food you like best and follow along with me as we learn the information that is on most food labels. Put the information from your food label on your worksheet in the column under the title Food Label #1. Write the name of your food at the top.

Using the information on the poster, help students identify the same information on their food label. Start with serving size and number of servings in the food container of their label.

For more information on food labels, visit the U.S. Food and Drug Administration website.

www.fda.gov/Food/ResourcesForYou/Consumers/NFLPM

Hopefully, students will have brought food labels from their favorite foods. If you have a shortage, use the prepared food labels from Lesson 1 in this unit.

The serving size is the amount typically eaten at one time. Serving size helps food manufacturers determine the amount of calories and nutrients in their products.

Identify serving size and number of servings.

Point out the "Note the Amount" food label sign.

The serving size on this food label is one cup. Locate the serving size on your food label and write your answer on your worksheet.

The serving size listed on food labels vary. Manufacturers can define their own serving size.

Post the food label sign, "Number of Servings."

This food label indicates that the package contains two servings. How many servings in the container or package of your food? Record your answer.

Use the teacher reference, "Visualizing Amounts," to help students picture different amounts of food. Show the common items to help students visualize various amounts.

Our government tells us how much we should eat daily of each food group. It is called Recommended Daily Amount We'll talk more about this later.

Identify number of calories in each serving.

There are 250 calories in each serving of this food.

Post the food label sign, "Check calories for each serving."

Find the number of calories in one serving of your food and record your answer.

Download one or both of the PowerPoint presentations titled, "Portion Distortion," from the Department of Health and Human Services, National Institutes for Health website. They present examples of how portions of foods have increased in 20 years.

http://hp2010.nhlbihin.net/portion

There are two servings in this container so how many calories would I consume if I ate all of the food in the container?

Answer: 500

How many calories would you consume if you ate all of the food in your container?

Identify the information found in the Percent of Daily Value.

Point out the food label sign, "Percent of Daily Value."

The column on food labels called Percent of Daily Value can tell you several things about the food. We looked at this column when we found the nutrients in snacks.

Post the food label signs, "5% or less is LOW," and "20% or more is HIGH."

If a food contains 5% or less of a nutrient, it has a low amount of that nutrient. If a food contains anything over 20%, it has a high amount of a nutrient.

Looking at your food label, write down any nutrients that are low, 5% or less, and any that are high, 20% or more.

Encourage your food service partners to display posters of food labels for the foods they are serving. Have students help to create them.

Would you say that this food is a low-fat food?

Answer: no

Identify the recommendations for nutrients to increase and decrease.	*Our government consults with experts to learn the best scientific knowledge about diet, physical activity and other issues related to what we should eat and how much physical activity we need. Then, they provide recommendations for us to follow.* *The Dietary Guidelines want us to increase:* • *dietary fiber,* • *calcium,* • *potassium, and* • *vitamin D* Post the food label sign, "Get enough of the nutrients in yellow." Note that all of these are listed on the food label except potassium. ***Raise your hand if you have foods with 20% or more of any of these nutrients.*** Post the food label sign, "Limit the items listed in orange" *The Dietary Guidelines also want you to decrease:* • *solid fats (major source of saturated and trans fats),* • *added sugars,* • *sodium (salt), and* • *refined grains.* ***Raise your hand if your food has less than 5% saturated fat and sodium.*** *A percentage of Daily Value is not provided for trans fats and sugar. Experts advise us to keep our intake of saturated and trans fats as low as possible.* *The sugar listed on the food label is not necessarily added sugar. It includes sugars naturally found in foods, such as milk and fruit, as well as those added to a food or drink. You need to check the ingredient list to find out about added sugars.*	 Have the students invite the student body, or specific classes, to make suggestions for healthy snacks they would like to see offered at school. The students would evaluate the suggestions and use them to develop a proposal for the school to offer healthy snack options in vending machines or in the cafeteria. They could also sponsor a "Healthy Snack Day" in which healthy snacks are prepared and sold by the fifth graders to raise money for the school.  Refined grains have been processed to improve texture and shelf life. The processing also removes fiber, iron, and B vitamins. Iron and B vitamins may be added back in and the product labeled "fortified" or "enriched."
Grade their food.	***How would you grade your food (A – E) for nutritional value?***	
Have students re-evaluate the snacks on their worksheet, "Snacking for Health," from Lesson 1 in this unit.	Have a few students share their food grades and their reasons. Redistribute the student worksheet, "Snacking for Health," or have students locate the worksheet. Ask students to review the snacks they selected to see if they are high or low in nutrients. Call on several students to name a snack with a high nutrient content.	

Application or Skill Practice: Interpret information found on food labels.

Approximately 15 minutes

Instructional Steps	Script & Detailed Directions	Extensions & Suggestions
Interpret information found on food labels to determine the nutrients that are in greatest and least quantity.	*Look at two more of your food labels and complete your worksheet.* When they are finished, call on several students for examples of foods they graded "A" or "B" and ask for their reasons.	 Use the rubric provided at the end of the lesson if you want to assess students' skill development. 
Save the student worksheets and food labels for Lesson 3 in this unit. 	*Keep your worksheets and your food labels in a safe place here at school. You will use them again during our next nutrition lesson.*	 Collect the worksheets and food labels.

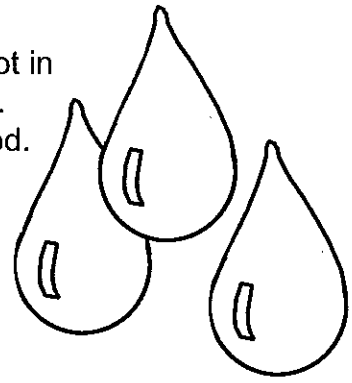
Closure: Summarize by reviewing the importance of drinking water and using food labels to choose healthy foods.

Approximately 2 minutes

Instructional Steps	Script & Detailed Directions	Extensions & Suggestions
Review importance of water in the body and challenge students to drink more water daily.	*Today we learned about the importance of water in all body functioning. All of us should drink several glasses of water every day.* *Focus on how much water you drink every day. Try to substitute water for other liquids at least two-thirds of the time. You should drink even more water if you are very active.*	
Review information found on food labels and how the information can benefit them.	*Today you also learned what information is available on food labels.* ***How do you think reading food labels might help you eat a healthier diet?*** Answers: Reading food labels is an easy way to determine what nutrients are in a food so that a person can get the nutrients he or she needs and avoid foods with few nutrients and lots of calories.	
Preview the next health lesson.	*I bet you think you know all about food labels. Well, there is more to learn. In our next health lesson, we'll explore more information from food labels and identify guidelines for healthy eating!*	

Name _____

Water: The Essential Nutrient



Facts About Water and the Human Body

- The human body is about 60% water. A person who is healthy and not in a very hot or cold place can only live about 3 to 7 days without water. However, a person could live for weeks and even months without food.
- Water is the liquid in blood. It moves the oxygen, carbon dioxide, cells and nutrients to and from all parts of the body.
- All body cells need water to do their work.
- Water is necessary to digest food and absorb vitamins and minerals.
- Water is the cushioning for joints and soft tissues of the body.
- Your body gets rid of excess water through urination and sweating.
- Most foods contain some water. Fruits and vegetables are 80 to 95% water, meats are up to 50% water, and grains up to 35% water. Consequently, you get some of the water your body needs from the foods you eat.
- How much water you should drink depends on how active you are, what climate you live in, and what foods and other liquids you eat and drink. For example, fruit and vegetable juices, sodas, teas, and coffee also contain water. But they may contain other things that aren't as healthy, such as sugar and caffeine. Water is a good choice instead of drinks that contain lots of sugar or caffeine. Drink several glasses of water each day. Learn to listen to your body. Drink water when you feel thirsty. You need more water when you are exercising, in a hot place for a long time, or sick with diarrhea, vomiting or fever.

List all the liquids you drank yesterday. Estimate how many 8-ounce glasses of liquids you drank. Include milk, water, soda pop, juices, tea, coffee and any other liquids.

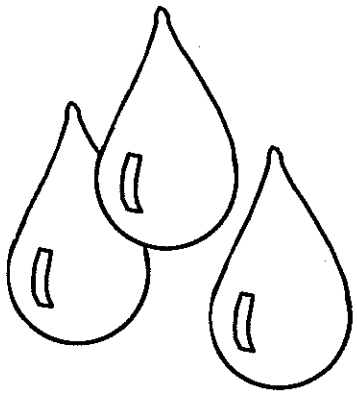
Beverage	Number of 8-Ounce Glasses	
	Total Number of 8-Ounce Glasses of Liquid	**Total Number of 8-Ounce Glasses of Water**

What was your total intake of liquids yesterday?

How much of this was water?

How many of these liquids had added sugar?

The Facts About Water



People enjoy a variety of beverages. Water is one of them. However, many people choose beverages other than water and may not be drinking enough water for adequate hydration and health.

Why Drink Water?

- It is an essential nutrient and makes up about 60% of the adult body weight.
- Water contains no calories or fat.
- It maintains homeostasis in the body.
- All body cells need water to function properly.
- Water is the cushioning for joints and soft tissues of the body.
- It helps to maintain the body's temperature.
- It is needed for all body functions, such as nutrient digestion, absorption, transport to and from cells and metabolism.
- It may help with weight loss by acting as a natural appetite suppressant.
- It is vital to electrolyte balance.
- It prevents the problems associated with dehydration, such as headache and fatigue.

How Much Is Enough?

How much water you should drink depends on how active you are, what climate you live in, and what foods and other liquids you eat and drink. Every day you lose water through your breath, sweat, urine and bowel movements. For your body to work properly, you must replace its water supply by drinking liquids and eating foods that contain water. In general, doctors recommend that healthy adults living in a mild climate drink 8 or 9 cups of water a day. Learn to listen to your body. Drink water when you feel thirsty. You need more water when you are exercising, in a hot location or at high altitudes for a long time, or sick with diarrhea, vomiting or fever.

Sources of Water

- In an average adult diet, food provides about 20% of total water intake. The remaining 80% must come from the beverages a person drinks.
- Fruits and vegetables are 80 to 95% water, meats are up to 50% water, and grains up to 35% water.
- Consuming plain water is best.

What About Sodas and Juices?

Sodas and juices contain water as do coffee and tea. However, sodas and juices contain lots of sugar. Both sodas and juices add calories to your diet, promote tooth decay, and can make it difficult to manage your weight. Sodas are also void of nutrients.

Diet sodas do not contain sugar, but often are high in sodium and artificial sweeteners that may make them a less healthy choice than plain water.

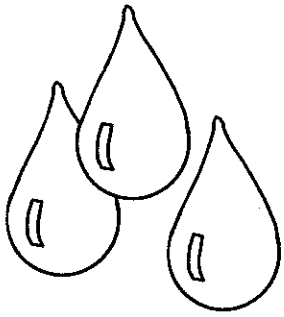
Fruit juices are a source of fruit. However, eating whole fruit is always better because it contains fiber and many other nutrients. Vegetable juices are a source of vegetables and, in general, contain fewer calories than fruit juices. Although vegetable juices contain more nutrients than fruit juices, eating whole vegetables provides more fiber and nutrients.

Other possible choices as a source of water are herbal or green tea, vegetable juice, diluted fruit juice, sparkling water, and a high-quality bottled water.

Dehydration

Dehydration is a condition that occurs when you do not have enough water in your body to carry out normal functions. Signs and symptoms include:

- excessive thirst
- fatigue
- headache
- dry mouth
- little or no urination
- muscle weakness
- dizziness
- lightheadedness



Can a Person Drink Too Much Water?

It is very uncommon. However, hyponatremia is a condition in which excess water intake dilutes the normal amount of sodium in the blood. Signs and symptoms include:

- nausea
- vomiting
- fatigue
- confusion

Ways to Increase Water Intake

- Keep a glass or bottle of water near you as you work, read, or exercise.
- Keep a pitcher of water handy in the refrigerator.
- Drink hot or cold herbal teas.
- Drink a glass of water with each meal and between each meal.
- Take water breaks.
- Carry water in your car.

Worried About Contaminants in Tap Water?

- Use a high-quality bottled water.
- Flush your kitchen faucet daily by letting water run for about three minutes.
- Have tap water tested.
- Use a home purifying or filter system.

For more information visit these web sites:

Institute of Medicine of the National Academies:
www.iom.edu

University of Michigan Health System:
www.med.umich.edu

Name _____

WHAT AM I DRINKING?

DAY ONE		
Beverage	Number of 8-Ounce Glasses	
	Total Number of 8-Ounce Glasses of Liquid	Total Number of 8-Ounce Glasses of Water

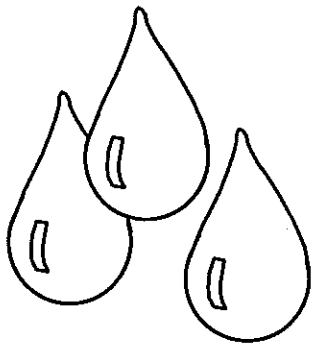
DAY TWO		
Beverage	Number of 8-Ounce Glasses	
	Total Number of 8-Ounce Glasses of Liquid	Total Number of 8-Ounce Glasses of Water

Name _____

DAY THREE		
Beverage	Number of 8-Ounce Glasses	
	Total Number of 8-Ounce Glasses of Liquid	Total Number of 8-Ounce Glasses of Water

Are you drinking enough water? You should drink several glasses of water each day.

What changes will you make if you need to?



Name _____

Interpreting Food Labels

	Food Label #1	Food Label #2	Food Label #3
Name of Food			
Serving Size			
Number of Servings			
Calories Per Serving			
Nutrients With Less Than 5%			
Nutrients With More Than 20%			
	Circle Yes or No	Circle Yes or No	Circle Yes or No
Does it contain 20% or more: fiber calcium potassium vitamin D	 yes no yes no yes no yes no	 yes no yes no yes no yes no	 yes no yes no yes no yes no
Does it contain 5% or less: solid fats (saturated fats) sodium	 yes no yes no	 yes no yes no	 yes no yes no
	Circle the Grade You Give This Food	Circle the Grade You Give This Food	Circle the Grade You Give This Food
	A B C D E	A B C D E	A B C D E

Visualizing Amounts

Young people and adults often struggle to understand how much of different foods should be eaten. The following common objects approximate a specific amount and can be used to help students visualize amounts. The Dietary Guidelines do not recommend a specific number of servings per day for different age groups. Instead, they recommend a total daily amount of different food groups. The amount for young people 9, 10, or 11 years old are noted at the bottom of the chart. Serving sizes are discussed in this lesson because they are noted on food labels.

Food Groups	1. Vegetables	2. Fruits	3. Grains	4. Dairy	5. Protein Foods
Amounts	Size of a baseball = one cup	Size of a baseball = one cup	Size of a CD in a plastic case = one ounce of bread Size of a baseball = one cup or one ounce of dry cereal Size of a small computer mouse = 1/2 cup or one ounce of cooked pasta, rice, or cooked cereal	One 8-ounce measuring cup = one cup of milk or yogurt Size of two 9-volt batteries = 1 1/2 ounces of natural cheese, the equivalent to one cup	Size of a deck of cards = two or three ounces of meat, poultry, fish Size of a baseball = one cup or four ounces of cooked dry beans Size of a ping pong ball = two tablespoons or two ounces of peanut butter One egg = one ounce
Daily Amount for Young People 9 Years Old	Girls: 2 cups Boys: 2 1/2 cups	Girls and Boys: 1 1/2 cups	Girls: 5 ounces Boys: 6 ounces	Girls and Boys: 3 cups	Girls and Boys: 5 ounces
Daily Amount for Young People 10 Years Old	Girls and Boys: 2 1/2 cups	Girls and Boys: 1 1/2 cups	Girls and Boys: 6 ounces	Girls and Boys: 3 cups	Girls and Boys: 5 ounces
Daily Amount for Young People 11 Years Old	Girls and Boys: 2 1/2 cups	Girls: 1 1/2 cups Boys: 2 cups	Girls and Boys: 6 ounces	Girls and Boys: 3 cups	Girls: 5 ounces Boys: 5 1/2 ounces

Assessment Rubric for Skill Development: Reading Food Labels

The following rubric can be used for assessing student skill development. The student has demonstrated the following elements of this skill through role play, written assignments, or classroom activities.

Elements in the Lesson

In reading food labels, the following are elements to identify:

- Name of food
- Serving size
- Number of servings
- Number of calories per serving
- Nutrients with less than 5%
- Nutrients with more than 20%
- 20% or more each of fiber, calcium, potassium, vitamin D
- 5% or less each of solid fats (saturated fats, trans fat), added sugar, sodium (salt), refined grains

1	2	3	Comments
Few of the elements of label reading were completed.	Some of the elements of label reading were completed.	All of the elements of label reading were completed.	

